

## **REMARKS**

The Office Action dated February 9, 2007 has been received and carefully considered. In this response, the Specification (title of the invention) has been amended. Entry of the amendment to the Specification is respectfully requested. Reconsideration of the outstanding objections/rejections in the present application is also respectfully requested based on the following remarks.

### **I. THE OBJECTION TO SPECIFICATION**

On page 2 of the Office Action, the Specification was objected to for having a non-description title. Responsive to this objection, Applicant has replaced the current title with a more descriptive one -- "System and Method for Generating PET-CT Images."

In view of the foregoing, it is respectfully requested that the aforementioned objection to the Specification be withdrawn.

### **II. THE OBVIOUSNESS REJECTION OF CLAIMS**

On page 2 of the Office Action, claims 1-7, 9-17, 19 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Townsend (U.S. Patent No. 6,490,476) in view of Hamill (U.S. Patent Pub. No. 20030190065). On page 6 of the Office Action, claims 8 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Townsend in view of Hamill and further in view of Koritzinsky (U.S. Patent No. 6,272,469). These rejections are hereby respectfully traversed.

Under 35 U.S.C. § 103, the Patent Office bears the burden of establishing a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

As stated in MPEP § 2143.03, to establish prima facie obviousness of a claimed invention, *all* the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). That is, “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970).

Regarding claim 1, the Examiner asserts that Townsend discloses all the method steps as recited, including the following step:

“(d) *simultaneously conducting the following steps:*  
*reconstructing at least a portion of a PET image for the current*  
*frame, including the step of overlapping a portion of the current frame*  
*with an adjacent frame, and*  
*acquiring at least a portion of a next frame of PET data.”*

It is respectfully submitted that the Examiner may have overlooked the word “simultaneously” in this claim element.

In claim 1, the method step (d) requires that “*at least a portion of a next frame of PET data*” be acquired at the same time when “*at least a portion of a PET image for the current frame*” is being reconstructed. This timing requirement for simultaneous PET image reconstruction and PET data acquisition is advantageous as it shortens the total effective examination time. Some background information is provided at paragraphs [0004]-[0007] of the present application —

**[0004]** ... In a typical PET-CT scan, the patient first undergoes a CT scan, and then the patient undergoes a PET scan before exiting the scanner. After the CT and PET data have been acquired, the PET-CT scanner processes the data and generates a fused PET-CT image.

**[0005]** In PET-CT systems, the total effective examination time is the amount of time to acquire the PET and CT data, which may be significant,

plus the amount of time to process the data. The data processing time after the CT and PET data have been acquired may also be significant, depending on the amount and type of data acquired. For PET-CT systems which perform 3D whole body (multiple frame) scans, the problem of long effective scan times can be exacerbated by the relatively long time it takes to process the 3D PET data.

[0006] The amount of time which a scanner takes to produce an image is very often an important consideration for hospitals and other health care providers in assessing the value of the scanner, particularly in the clinical environment. A scanner which can complete more scans per day is more valuable to the hospital than one which runs less efficiently, and therefore the hospital will be better able to justify the significant investment in a high-throughput scanner. In many existing PET-CT scanners, however, reconstruction times can be so long that 3D whole-body exams can become unacceptably long in clinical environments.

[0007] The present invention provides a method and apparatus for addressing these deficiencies.

That is, unlike the prior art PET-CT systems which wait until all PET data have been acquired before starting the PET image reconstruction, claim 1 teaches acquiring PET data for a next frame while a current frame of PET image is being reconstructed.

The Examiner cites paragraph [0080] of Hamill as disclosing the method step (d) in claim 1. The Examiner may have been distracted by the language “*overlapping a portion of the current frame with an adjacent frame*” within the “*reconstructing*” sub-step in step (d), and somehow overlooked the additional timing requirement for the two sub-steps (i.e., “*reconstructing*” and “*acquiring*”) in step (d). Otherwise, it would be appreciated that neither Townsend nor Hamill discloses simultaneous PET image reconstruction and PET data acquisition as presently claimed.

The above-arguments regarding independent claim 1 also apply to independent claim 11.

Since Townsend and Hamill fail to disclose or suggest all the elements of claims 1 and 11, claims 1 and 11, as well as their respective dependent claims 2-10 and 12-20, should be patentable over Townsend and Hamill.

Regarding claims 8 and 18, the obviousness rejection of these two claims has become moot in view of the deficiencies of Townsend and Hamill.

In view of the foregoing, it is respectfully requested that the aforementioned obviousness rejection of claims 1-20 be withdrawn.

III. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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